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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,690	04/20/2001	Robert C. Keller	TI-31429	1790

23494 7590 12/03/2003

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EXAMINER	
SINGH, DALZID E	
ART UNIT	**PAPER NUMBER**
2633	6

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

TS

Office Action Summary	Application No.	Applicant(s)	
	09/839,690	KELLER ET AL.	
	Examiner	Art Unit	
	Dalzid Singh	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On the brief description of the drawings, on page 4, there is no description of figures 1a and 1b of the drawings. Appropriate correction is required.

On page 6, line 6 of the specification, applicant cites, "...optical module 30 is provided in Figure 11." However, there is no Figure 11 in the drawing.

On page 6, line 8 of the specification, applicant cites, "(OUT) 324." Should this be (OTU) 324?

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1, line 5, recites, "processor circuitry coupled to the plurality of optical receivers..." and line 7, recites, "an interface unit coupled to the processor circuitry" However, such limitations is not disclose in the specification nor shown in the figures,

therefore no teaching is provided to a person of ordinary skill of how the processor circuitry is coupled to the plurality of receivers and how the interface circuitry is coupled to the processor circuitry. Thus, the specification fails to provide an enabling disclosure for claim 1.

Claim 15, line 5, recites, "processing circuitry coupled to the first and to the second optical wireless receivers..." However, such limitations is not disclose in the specification nor shown in the figures, therefore no teaching is provided to a person of ordinary skill of how the processing circuitry is coupled to the first and to the second optical wireless receivers. Thus, the specification fails to provide an enabling disclosure for claim 15.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8-14, 20, 21, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Doucet et al (US Patent No. 5,786,923).

Regarding claim 1, Doucet et al disclose telecommunication network comprising:

an optical module including a plurality of optical receivers, each optical receiver configured to receive a unique optical wireless signal, the optical module being configured to distinguish each unique optical wireless signal at one of the optical

receivers (as shown in Fig. 1, Doucet et al show plurality of transceiver units connected to 800A and 800M, which comprise of receiver and transmitter; the receiver received signal in time-multiplexed fashion, which indicate that each receiver received unique signal distinguish by assigned time slot for each receiver, see col. 2, lines 59-62, col. 6, lines 18-21, col. 7, lines 39-44);

processor circuitry (for example 795), which is found in optical router shown in Fig. 4, coupled to the plurality of optical receivers (optical receiver is part of the optical transceivers connected to 800A to 800M), the processor circuitry receiving electrical signals derived from the optical wireless signals (since the receiver comprise of photo-diode, see col.17, lines 5-9, therefore the optical wireless signal is converted to electrical signal to be processed by circuitries (795)); and

an interface unit coupled to the processor circuitry (for example, optical elements (230, 240, 261, 262, 380), shown in Fig. 6, is coupled to the processor circuitry (795)).

Regarding claim 2, as shown in Fig. 4, Doucet et al show that different ones of the optical receivers (i.e., transceiver connected to 800A to 800M) are aligned to have different fields of view such that each incoming optical beam can be viewed by at most one receiver (as shown in the figure, each receiver within the transceiver units, for example 800A or 800M, have different fields of view).

Regarding claims 3, as shown in Fig. 3, Doucet et al show different ones of the optical receiver (for example transceiver unit connected to 800A and transceiver unit connected to 800B) are aligned with adjacent receivers have different field of view such that each incoming optical beam cannot be viewed at the same time by two adjacent

receivers (as shown in Fig. 3, since receivers within the transceiver units are aligned or separated by a predetermined angular separation, therefore each receiver within the transceiver units have different field of view).

Regarding claim 4, as discussed above, Doucet et al teach that different ones of the optical receivers are aligned so that no receivers within a certain area have coincident fields of view such that each incoming optical beam cannot be viewed by any two receivers in said area at the same time (as cited in col. 8, lines 20-23, Doucet et al teach the use of gratings to separate different wavelengths to be received by the receivers so that incoming optical beam cannot be viewed by any two receivers in said area at the same time; and shown in Fig. 3, it appears that the beams are not coincidental upon one another, therefore the beams cannot be viewed by any two receivers in the area at the same time).

Regarding claim 5, in col. 8, lines 20-23, Doucet et al teach that the receiver, within the optical router, used gratings (i.e., filter) so that the receiver can receives optical signals within a limited range of wavelengths.

Regarding claim 6, as shown in Fig. 4, Doucet et al show that each optical receiver located so that it can receive no more than one of the unique optical wireless signals (as discussed in claim 5, the use of grating allows reception of a unique signal).

Regarding claim 8, as discussed above, Doucet et al teach the use of time-multiplexed to transmit and received the signal, which enabled and disabled the receiver over time such that each optical receiver can receive no more than one of the unique optical wireless signals (see col. 6, lines 18-41, the optical wireless signal

(beam) is transmitted in time-multiplexed (i.e., time slots) fashion, which contain timing information to instruct the transceiver as when to transmit, which indicate when to receive the transmitted signal.

Regarding claim 9, as cited in col. 7, lines 36-47, Doucet et al teach that one of the optical receivers is configured to receive at least first and second unique optical wireless signals, the first and second unique optical wireless signals being time division multiplexed (the receiver at the optical router received first and second beam which are distinguished using time division multiplexed access).

Regarding claim 10, as cited in col. 7, lines 36-47, Doucet et al teach that the unique optical wireless signals includes a modulated sub-carrier signal and wherein each of the optical receivers is configured to receive source information from the modulated sub-carrier signal (Doucet et al teach the use of modulated signal; modulated signal comprises of data signal (i.e., information signal) and carrier signal).

Regarding claim 11, as cited in col. 7, lines 36-47 and col. 8, lines 20-23, Doucet et al teach method of distinguishing each unique optical wireless signal at only a respective one of the optical receivers using at least two techniques, the at least two techniques selected from field of view, wavelength filter, polarization filter, time division multiplexing and subcarrier modulation (the two techniques are selected form time division multiplexing and wavelength filter).

Regarding claim 12, Doucet et al teach that the processor circuitry comprises a digital signal processor (in col. 6, lines 31-41, Doucet et al teach the use of master clock to compute timing information, which is a digital signal processor).

Regarding claim 13, as shown in Fig. 4, Doucet et al show microcontroller (for example, control system 795 contain a microcontroller for controlling or deflecting beam).

Regarding claim 14, as shown in Fig. 8, Doucet et al show optical elements (230, 240, 261, 262, 380) as an interface unit comprises a physical layer device (i.e., lenses).

Regarding claim 20, Doucet et al disclose telecommunication network, as shown in Fig. 3, comprising:

receiving a first optical wireless signal from a first source (optical router (110) received first optical wireless signal from first source (for example, 130A));

receiving a second optical wireless signal from a second source (optical router (110) received second optical wireless signal from second source (for example, 130B)); and,

distinguishing between the first optical wireless signal and the second optical wireless signal (in col. 7, lines 36-67, Doucet et al teach method of distinguishing between different users and in col. 8, lines 1-12, 20-30, Doucet et al teach the use of grating to distinguish between different signals (i.e., wavelengths)).

Regarding claim 21, as shown in Fig. 4, Doucet et al show receiving the first optical wireless signal at a first angle and receiving the second optical wireless signal at a second angle that is different than the first angle (as shown in the figure, optical wireless signals are received by different receivers, within the transceiver connected to 800A and 800M, at different angles).

Regarding claim 23, as cited in col. 8, lines 21-23, Doucet et al teach the use of grating to separate different wavelengths (i.e., at least two wavelengths).

Regarding claim 24, as cited in col. 18, lines 48-51, Doucet et al teach that the first optical wireless signal (first light beam) has a first polarization and the second optical wireless signal (second light beam) has a second polarization, the second polarization being substantially orthogonal to the first polarization.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 15, 17-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al (US Patent No. 5,786,923).

Regarding claim 15 (as far as understood), Doucet et al disclose telecommunication network comprising:

a first optical wireless receiver having a photodetector with a first field of view (transceiver, which include receiver, connected to 800A, can be considered as first optical wireless receiver; and see col. 17, lines 5-9 and shown in Fig. 7, Doucet et al teach the use of photodiode in the receiver);

a second optical wireless receiver having a photodetector with second field of view (transceiver, which receiver, connected to 800B or 800M, can be considered as

second optical wireless receiver; and see col. 17, lines 5-9 and shown in Fig. 7, Doucet et al teach the use of photodiode in the receiver; and

processing circuitry (795) coupled to the first and to the second optical wireless receivers (the receivers are within transceiver units connected to 800A and 800B or 800M), the processing circuitry receiving first data from a first remote source and second data from a second remote source (for example, subscriber transceiver units are remote sources), the first data being received through the first optical wireless receiver and the second data being received through the second optical (see col. 7, lines 60-67 to col. 8, lines 1-12);

Doucet et al, as shown in Fig. 4, show transceivers connected to 800A to 800M in a circular fashion and differ from this claim in that Doucet et al do not specifically disclose that the second field of view being at least five degrees out of line with the first field of view. However, as shown in the figure, Doucet et al clearly show separation between the transceivers' field of view. Based on this teaching, it would have been obvious to an artisan at the time of the invention to adjust the field of view of the transceivers to be at least five degrees. Furthermore, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Minning and Mfg. Co. v. Coe, 69 App D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App D.C. 324, 135 F.2d 11, 57 USPQ 136. In addition, discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Antonie*, 559

F.2d 239, 618, 195 USPQ 6 (CCPA 1977); *In re Aller,* 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955). See also *In re Aller,* 105 USPQ 233 (CCPA 1955) and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to set the field of view to an optimum or workable value or range by routine experimentation.

Regarding claim 17, in col. 8, lines 20-23, Doucet et al teach the use of gratings (i.e., wavelength filter).

Regarding claim 18, Doucet et al disclose telecommunication network comprising optical wireless communication device, as discussed above, further comprises:

a transmitter, part of the transceiver system as disclosed above;

a source of light having a beam of light (as shown in Fig. 4, Doucet et al show beams of light coming out of the transceiver connected to 800A, 800B or 800M);

a controllable beam steering device (see col. 22, lines 14-19, Doucet et al teach rotating the optical antenna (i.e., beam steering device) to search for other transceivers); and

an actuator to permit steering said light beam, the beam steering device being controllable by predetermined control signals (as discussed above, optical antenna can be rotated (i.e., steer) to search for other transceivers, therefore there must be actuators to turn and control movement of the antenna).

Regarding claim 19, as shown in Fig. 4, Doucet et al show plurality of additional optical receivers, at least some of the additional optical receivers having a photodetector with said first field of view (see col. 17, lines 5-9).

Regarding claim 22, Doucet et al, as shown in Fig. 4, show transceivers connected to 800A or 800B or 800M in a circular fashion and differ from this claim in that the second field of view being at least five degrees out of line with the first field of view. However, as shown in the figure, Doucet et al clearly show separation between the transceivers' field of view. Based on this teaching, it would have been obvious to an artisan at the time of the invention to adjust the field of view of the transceivers to be at least five degrees (see claim 15).

8. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al (US Patent No. 5,786,923) in view of Kennedy (US Patent No. 5,121,242).

Regarding claim 7, Doucet et al disclose telecommunication network which received orthogonal polarized beams (see col. 14, lines 21-24) which include two states of polarization (for example, trans electric (TE) and trans magnetic (TM) which are orthogonal with respect to the other). Doucet et al differ from this claim in that Doucet et al do not teach that some of the optical receivers include a filter that only passes a first polarization of light and others of the optical receivers include a filter that only passes a second polarization of light, the first polarization being substantially orthogonal to the second polarization. However, Kennedy, in col. 4, lines 58-62, teaches the use of polarized filter having a wave plate that transmit (passes) light having a predetermined angle of polarization (for example, first polarization which could be in TE mode of polarization) and block light having polarization perpendicular (orthogonal) to this angle of polarization (for example, second polarization which is in

TM mode of polarization). Since Doucet et al teach that the receivers within the optical router, as shown in Fig. 4, received plurality of different wireless optical signals from all directions, therefore it would have been obvious to provide a polarization filter, as taught by Kennedy, to the receivers of Doucet et al in order to receive a desired optical wireless signal having a particular polarization state. One of ordinary skill in the art would have been motivated to provide such filter in order to eliminate or reduce signal interference, such as crosstalk, that occur between different optical wireless signals.

Regarding claim 16, as discussed above, the combination of Doucet et al and Kennedy teaches the use of a polarization filter (i.e., polarized filter which distinguish among different polarization states).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Freitas et al (US Patent No. 5,321,542) is cited to show control method and apparatus for wireless data link.

Glynn (US Patent No. 5,552,920) is cited to show optically crosslinked communication system.

Bloom et al (US Patent No. 6,490,067) is cited to show multi-channel optical transceiver.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (703) 306-5619. The examiner can normally be reached on Mon-Fri 8am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

DS
November 18, 2003

JASON CHAN
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